

May 10, 1949

Dr. Arthur Hensley Parmelee
Children's Hospital
Los Angeles, California

Dear Dr. Parmelee:

I am writing to ask if it would be possible for you to arrange for my colleagues and me to obtain some blood from sickle cell anemia from patients at the Children's Hospital, to use in our research on this disease.

With the collaboration of Harvey Itano, M.D., and three other post-doctorate research men I have been carrying on research on sickle cell anemia during the past three years. This work is being carried on with the aid of a grant from the Public Health Service. We have discovered that the hemoglobin in the red cells of blood from sickle cell anemia patients is different from ordinary adult human hemoglobin. The difference is observed in the Tiselius apparatus in the form of a difference in the electrophoretic mobility, which also corresponds to a difference in isoelectric points. It is indicated that there are between two and four additional acidic groups on every sickle cell hemoglobin molecule, or else there are between two and four basic groups missing. We are getting ready to carry out an amino acid analysis on the sickle cell hemoglobin in order to determine the nature of this difference in chemical composition. The hemoglobin from sickle cell anemia patients is 100% of this new type, whereas that in the red cells of sickle cell trait individuals is a mixture of sickle cell hemoglobin and normal human hemoglobin.

Our progress is now being hampered by a lack of sickle cell anemia blood. We need approximately one liter of this blood for work in the immediate future, and presumably would like to have a steady source of supply later on, amounting to a similar quantity every few months. It would be possible for us to arrange to pay for the expense involved in obtaining the blood.

I am very grateful to you for whatever assistance you can give us with this problem. We are hoping that the work will not only lead to a better understanding of this disease - this is the first time that a form of hemoglobin in human beings has been found that differs from normal human hemoglobin (except for the fetal hemoglobin that occurs in

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infants) -- but also that some contribution may be made to the treatment of the disease.

Sincerely yours,

Linus Pauling:ahh